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Diabetes Self-Management Support Using mHealth and Enhanced Informal Caregiving

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RESEARCH BRIEF

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IVR-based mHealth services may increase access to between-visit monitoring and diabetes self-management support

Background/Objectives: Proper management of diabetes requires relatively frequent self-assessment and physical inspection that, for those with mobility difficulties, poor health literacy, or issues with memory, can be a particularly challenging demand. Recent developments in the "mHealth" or mobile health practice of medicine are aimed at helping patients keep up with their care between scheduled visits to clinicians. Interactive Voice Response (IVR) technologies have been adapted to make contact with patients at set intervals to help assess their self-management. This system is employed in conjunction with new programs designed to help patients establish a social support system, consisting of an invested but informal caregiver who lives outside the home. Through user reports, the IVR system assesses a patient's "self-monitoring of blood glucose (SMBG), medication and dietary adherence, blood glucose levels, blood pressure levels, foot inspection, and overall functioning" (Aikens, 2013). If necessary, the system provides a report of medically significant issues to the patient's primary and informal caregivers to further and more accurately address any problems. The objectives of CCMR's research are to determine the factors that influence patient engagement with the system as well as the manageability of clinician notifications generated by the system.

Methods: This research included 303 patients suffering from type 2 diabetes, who were patients at one of sixteen Department of Veterans' Affairs outpatient clinics across Michigan, Illinois, Indiana, and Ohio. The patients' engagement with the IVR system was monitored week to week, as information about each call and patient responses were recorded over a three to six month period.

Findings/Impact: Throughout the study, a large majority of all attempted assessments were completed by the patients (84%). Interestingly, the likelihood of completing an IVR assessment was lower (82%) for patients without an informal caregiver, and higher (88%) for those patients who had one. Patients with poor health literacy, high levels of diabetes-related stress, or poor medication habits—arguably those for whom this technology is most helpful—were less likely to complete IVR calls, but that disparity was again lessened by the presence of an informal caregiver. The completed calls generated an average of .2 physician notifications per week, per patient enrolled in the program; of those notifications, a significant number were patient-reported hypoglycemic episodes and hypertension patterns that might otherwise have gone unreported. As the program goes on, physician notifications are projected to further decrease in frequency. These findings suggest that the system, as employed, is operating as intended by both engaging patients in routine reporting of their health status while providing feedback on significant health risks to physicians at a reasonable frequency. Perhaps more importantly, they suggest that in cases of patients with poor health literacy, poor mobility, or other factors that negatively affect self-management, a social support system of caregivers can encourage more proactive self-care and evaluation to improve overall health and diabetes treatment.

Links to the **full text** and additional information can be found here: http://www.ncbi.nlm.nih.gov/pubmed/24374137